

ABSTRACT OF THE DISCLOSURE

A refrigeration cycle for a vehicle air conditioning system allows the refrigerant-to-refrigerant heat exchanger to exchange heat between a high-pressure liquid refrigerant, which is delivered from the sub-cooling condenser and directed to the evaporator, and a low-pressure refrigerant having a liquid and gas phase, which is delivered from the evaporator and directed to the compressor. The refrigeration cycle also allows the amount of the refrigerant circulating through the refrigeration cycle to be adjusted in response to the level of sub-cooling upstream of a throttle hole of a reverse sub-cooling control valve to thereby indirectly control the level of superheating on the outlet side of the evaporator. This provides improvements both in the amount of heat to be exchanged between refrigerants in the refrigerant-to-refrigerant heat exchanger and the cooling performance of the evaporator.